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BMJ Open

Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors

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Running head: Protocol for Mindful Self Care and Resilience Intervention with Doctors

Title: Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors

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Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors

Introduction: The Mindful Self-Care and Resiliency (MSCR) program is a brief psychosocial intervention designed to promote resilience among various occupational groups. The intervention is based on the principles of mindfulness and also incorporates an educational self-care component. The current paper presents the protocol for an open trial that will evaluate the effectiveness of this program among doctors working in rural Queensland, Australia.

Methods and Analysis: We will measure the impact of the MSCR program on levels of employee resilience (Connor-Davidson Resilience CD-RISC; STARS), compassion satisfaction and compassion fatigue (Professional Quality of Life Scale – ProQol), self-compassion (Self Compassion Scale - SCS) and mood (Positive and Negative Affect Scale - PANAS). We will also assess the impact of the program on job satisfaction (The Abridged Job-In-General Scale), absenteeism/presenteeism (The World Health Organization Health and Work Performance Questionnaire -WHO-HPQ) and general well-being (WHO Five Well-being Index). Repeated measures analysis of variance will be used to analyse the impact of the intervention on the outcome measures taken at pre, post, one month, three-month and six-month follow-up. We will conduct individual interviews with participants to gather data on the feasibility and acceptability of the program. Finally, we will conduct an initial cost-effectiveness analysis of the program.

Ethics and Dissemination: Approval for this study was obtained from the Curtin University Human Research ethics committee and the study has been registered with the Australian Clinical Trials Registry. Results will be published and presented at national and international congresses.

Trial registration: The trial was registered on 16/10/ 2017 with the Australian New Zealand Clinical Trials Registry (ACTRN12617001479392p).

Keywords: Resilience, Medical Profession, Occupational Stress, Well-being, workplace, Mindfulness, Self-Care

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Strengths and Limitations of this study

Strengths:

- This study is the first trial of this intervention with a sample of general practitioners
- In addition to assessing change on standardised measures, this study will assess acceptability and feasibility by including individual interviews with participants.
- The study utilises several follow-up evaluations (1, 3 and 6-months post intervention).

Limitation:

- As this is an initial open trial, there is no control group comparison limiting firm conclusions that changes are attributable to the intervention itself.

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The work of a general practitioner (GP) is highly demanding, requiring the provision of high quality continuity of care to a wide spectrum of patients while often under significant time pressure. It is of concern that 60% of doctors report experiencing burnout at some stage in their careers^[1] and it is estimated that at any point in time one in three doctors are suffering burnout^[2]. Unfortunately, the experience of burnout is strongly associated with increased medical errors and is highly correlated with decreased patient satisfaction, decreased employee job satisfaction, lower job productivity, increased absenteeism and intent to leave^[3].

In addition to the already stressful nature of general practice, rural doctors face a further set of unique challenges. These include but are not limited to:

- Professional and social isolation
- Poorer local amenities and infrastructure
- Limited training and professional development opportunities
- Difficulties delivering services in geographically isolated areas, including long-distance travel, extended work hours and lack of locum support.

It is therefore essential that GPs are provided with the skills they need to recognise when they are at risk of burnout and the kinds of strategies they can put in place to maintain their own self-care and emotional well-being. Our research group has developed an evidence-supported intervention that has been shown to reliably reduce burnout and improve well-being among nurses. This program, the Mindful Self-Care and Resilience (MSCR) Intervention is a brief, skills-based program that incorporates principles of mindfulness, self-care and self-compassion. We have published two trials of this program with nurse participants, one an initial pilot investigation^[4] and a larger randomised controlled trial

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^[5](N=91). Our program is one of only 9 mindfulness-based programs for health care professionals that have been formally evaluated worldwide^[6]. Of these, only three others have been evaluated experimentally and, in contrast to our controlled trial, have included much smaller samples (N=36, N=38, N=43) and limited follow-up periods^[6]. The brief nature of the MSCR program (6.5 hours followed by 1.5 hour follow-ups weekly over next 3 weeks) means that it is affordable to deliver and does not require a large time commitment, ensuring its feasibility for busy doctors and reductions in organisational back-fill costs.

The present study, working in partnership with Central Highlands Healthcare and the Rural Doctors Association of Australia and the Generalist Medical Training Programme, provides a unique opportunity to directly build occupational wellbeing among rural doctors.

Current Intervention: Development Protocol

Several preliminary steps were undertaken in the development of the MSCR intervention. First, we based the content of the intervention on existing explanatory models of adaptive emotion regulation and resiliency. Gentry and Baranowsky^[7] suggested that interventions that target adaptive emotion regulation and patterns of thinking in response to stressors, and foster new ways of relating to work may be central to building resiliency and reducing compassion fatigue. Furthermore, Rees and colleagues^[8] proposed a model of workplace resilience that highlights the importance of mindfulness as an adaptive process that enables more balanced appraisals of stressful events. The two most dominant mindfulness approaches are mindfulness-based stress reduction (MBSR: Kabat-Zinn^[9]) and mindfulness-based cognitive therapy (MBCT: Segal, Williams and Teasdale^[10]). Evidence from occupational settings shows that these 8-week interventions reliably lower stress^[11] and burnout^[12,13] and increase

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job satisfaction^[14]. However, in busy occupational settings, the 8-week duration of conventional mindfulness-based interventions may limit their broader adoption^[15]. Fortunately, a small number of studies have shown that more brief and less intensive mindfulness-based interventions lead to significant reductions in burnout symptoms and increased resilience in nurses and health care workers^[16,17,18].

To address the above limitations, we developed a mindful self-care and resiliency (MSCR) program to be a brief psychosocial intervention that integrates key principles and practices of mindfulness-based therapy with compassion fatigue prevention education as developed by Gentry and colleagues^[19,7]. We conducted a pilot study to test the feasibility of MSCR for nurses working at an acute care hospital^[4]. As part of this initial evaluation we also interviewed the nurse participants to obtain their feedback as to the acceptability and effectiveness of the intervention^[20]. Finally, we compared the intervention to a wait-list control in a non-randomised wait-list control study^[5]. Both the initial pilot and the non-randomised control study showed that the MSCR intervention resulted in significant reductions in burnout and improvements on various indices of psychological well-being. The nurses interviewed reported that the intervention was relevant and the strategies taught were easy to apply to their workplace setting (e.g. 3 minute breathing space). The next step in development of the MSCR program is to examine its feasibility, acceptableness and effectiveness with a sample of medical practitioners.

Current Intervention: Research Protocol

Following the initial pilot studies, we developed a SPIRIT-compliant research protocol (see Table 1) to evaluate the efficacy of the program among a large cohort of health care professionals.

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Aims and Hypotheses

The aim of this research trial is to investigate whether the MSCR intervention is effective in reducing burnout, secondary traumatic stress, and symptoms of general psychological distress in doctors working in a rural setting in Queensland Australia. Secondary aims are to determine whether the intervention increases protective factors for occupational stress, including compassion satisfaction, self-compassion and resilience and to evaluate the cost-effectiveness of the program.

Our primary hypothesis is that doctors completing the MSCR intervention will show significant reductions in symptoms of burnout, secondary traumatic stress and general psychological distress from pre to post intervention and from pre intervention to follow-up. A secondary hypothesis is that doctors completing the MSCR intervention would show significant improvements in compassion satisfaction, self-compassion and resilience from pre-post intervention and from pre-intervention to follow-up.

Methods/Design

Study design and data analysis

We will conduct a pilot investigation of the effectiveness of the MSCR program with doctors using a sequential mixed-method study design. Mixed method designs use a blend of qualitative and quantitative data collection, procedures and analysis. This design provides data for a deeper understanding of occupational resilience and the acceptability, feasibility, applicability and effectiveness of the MSCR program to build and maintain resilience among rural general practitioners.

Effectiveness of the program: will be assessed by examining changes in scores on outcome measures at pre, post, one, three and six-month follow-ups.

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Feasibility, acceptability and applicability of the MSCR program: will be determined using open-ended individual telephone interviews (approximately 30 minutes) with a purposive sample of 20 participants, one-month following the intervention. While it is envisaged that 20 participants will provide data saturation, if this is not reached, interviews will continue until it is reached, or the pool is exhausted. Interviews will be transcribed verbatim and subjected to thematic analysis. An experienced qualitative researcher (Hegney) will conduct the interviews, and then independently read the transcripts line-by-line to identify meaningful words and phrases, which will be coded to generate categories in the data. These categories will be grouped and collapsed to develop overarching themes describing responses to the MSCR program. Further coding to identify sub-themes will be conducted using NVivo qualitative analysis software. Emergent themes and sub-themes will be presented in narrative form.

Cost effectiveness of the program: The cost analysis will be used to estimate the associated costs of the program, whilst outcomes will be expressed as cost per sick leave avoided and cost per Quality-Adjusted Life Years gained (QALY). *The Assessment of Quality of Life (AQoL) 8D* will be used to collect quality of life data. The AQoL-8D is a health-related quality of life instrument that has been designed for use in economic evaluation studies^[21]. The advantage of this instrument, above others, is that it was designed to capture changes in both physical and psycho-social health and it is simple and quick to administer. The AQoL-8D will be administered at one-month and 6 months follow up. Quality of Life values will be collated using the appropriate algorithms as outlined on the AQoL website.

Sample Size

We aim to recruit 60 participants. A-priori sample size estimation assuming at least an 80 percent chance of detecting a moderate anticipated effect size ($f = .25$) at an alpha level of 0.05, suggests that a total sample of $N = 32$ will be sufficient. Our previous studies^[4,5]

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suggest a 10% attrition rate across the study. Our initial intake of 60 participants will be sufficient to achieve the minimum sample size requirement of N= 32 by the final follow-up.

Participants

Inclusion criteria: general practitioners working in either a full-time or part-time capacity within the Emerald GP Super clinic in Emerald, Queensland.

Recruitment

Convenience sampling will be used to recruit general practitioners to participate in one of two MSCR programs (30 participants in each).

Procedure

All GPs employed at the Emerald GP Super Clinic will be invited to take part in the program. They will be sent an email from their line manager outlining the start date of the program and providing a summary of the research aims. This email will make it clear that they can attend the program and opt not to take part in the research component if they wish. Data collection points are: immediately before and after the face-to-face session (hard-copy survey); on completion of third follow-up session (one month), 3 months and 6 months. Upon arrival at the MSCR groups, participants will be welcomed and the study explained verbally and envelopes handed out with Participant Information Sheet and consent forms as well as the outcome measures to be completed. Participants will simply place their completed forms into a secure box at the back of the room. Those not taking part in the research will simply post their uncompleted forms. The one-day face-to-face MSCR session will be conducted at a Rural Medical Resilience Retreat in April 2018; the three 1.5 hr follow-up sessions will be conducted using video-conference software as it will provide a secure environment and overcomes the need for participants working in rural and remote sites to travel long distances to meet face-to-face.

Intervention: MSCR Protocol

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The MSCR program will be facilitated by Dr. Craigie (the developer of the MSCR program), who has worked closely with our team on previous studies. The full-day workshop includes education about compassion fatigue resiliency and introduces participants to mindfulness concepts (e.g., Autopilot Metaphor; Staying Present) and basic practices (e.g., breath meditation). Each participant will be provided with a manual that includes materials about Compassion Fatigue (CF) and its causes, and skills to build CF resiliency, referred to as the five “antibodies” (1 - Self-Regulation; 2 - Intentionality; 3 - Perceptual Maturation; 4 - Connection and Social Support; and 5 - Self-Care and Revitalisation. Both formal (e.g., body and breath; body scan) and informal practices (e.g., breathing space) are included and assigned as home-based practice exercises. A full description of the MSCR session content is provided in Craigie^[5]. Participants will repeat the outcome measures again at 1, 3 and 6 month follow-ups (electronically via qualtrics).

Outcome Measures

Demographics: (e.g. age, gender, qualifications, number of years working for employer)

The Connor-Davidson Resilience Scale (CD-RISC-25)^[22] is a valid and reliable measure of resilience for normal and clinical populations.

The Burnout Measure –Short Version is a short ten-item version of the widely used 21 item scale. Data from 2 national samples (Israeli Jewish and Arab) and 3 occupational samples attest to the validity and reliability of the BMS.^[23]

Positive and Negative Affect Scale [PANAS]^[24] is a 20-item measure of affective state that uses a 5-point Likert scale. It has two sub-scales; one measuring positive affectivity (PA) and the other negative affectivity (NA). The PANAS has demonstrated excellent reliability and validity, and is frequently used in research and clinical settings.

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Cognitive and Affective Mindfulness Scale, Revised (CAMS-R) ^[25] is a 20 item self-report measure of trait-based mindfulness.

The Self-Compassion Scale – short form [SCS-SF] ^[26] is a brief 12-item scale measuring self-kindness, common humanity, and mindfulness, defined as holding one’s experience in a balanced perspective. The SCS-SF consists of six subscales measuring self-kindness, self-judgment, common humanity, feelings of isolation, mindfulness, and over-identification (the tendency to fixate on negative perceptions of self). Each item is structured as a statement describing a particular behaviour. The respondent is asked to indicate how often he or she behaves in this stated manner on a 5-point scale from “Almost never” to “Almost always”. Negative constructs (self-judgment, isolation and over-identification) are reversed scored and the total mean calculated to obtain a total self-compassion score. Higher scores indicate more self-compassion in difficult times.

Cybernetic Coping Scale a 14-item measure of coping ^[27] is a 14 item measure of coping with a six point response format, that acknowledges the function of coping as both an independent variable and an outcome.

The Professional Quality of Life Scale version 5 [ProQol5] ^[28] provides a measure of the constructs of compassion satisfaction and compassion fatigue; the second of which comprises burnout and secondary traumatic stress. Compassion satisfaction indicates an individual’s positive adjustment to work derived from the pleasure of caring for others and the sense of performing well. On the other hand, burnout manifests as feelings of frustration, depressed mood and exhaustion that arise as negative aspects of caring. The third construct, secondary traumatic stress constitutes avoidance behaviours in response to work-related trauma associated with exposure to others’ suffering through caring. The ProQol5 is a 30-item, five-point Likert scale, containing three 10-item subscales measuring each of the aforementioned constructs.

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The WHO (Five) Well-being Index [WHO Five] ^[29] is a short instrument measuring subjective quality of life based on positive mood, vitality and general interest. It has five items rated on a six-point Likert scale. Percentage scores are reported and compared to monitor changes in well-being. A difference of 10% indicates a significant change. The instrument has been well-validated in the general population ^[29].

The World Health Organization Health and Work Performance Questionnaire [WHO-HPQ] ^[30]. Absenteeism will be measured by four items from the WHO-HPQ. Kessler et al. demonstrated significant relationships between the self-reported scale responses and objective records of missed work from payroll records. Job performance will be measured by two items from the WHO-HPQ's presenteeism subscale which asks respondents to rate their own performance, and the average performance of other workers in their field, to form a relative indication of job performance.

The Abridged Job-In-General Scale ^[31] will be used to measure job satisfaction. This eight-item scale is a short version of the previous Job in General Scale. Participants respond with "Yes", "No", or "?" to affective descriptors of their job at the global level. Excellent measurement model validity and reliability indices have been demonstrated.

Data Analyses

This study will utilise repeated measures ANOVA to test the effectiveness hypotheses. Effect-sizes will be calculated to derive a Cohen's *d* coefficient. Thematic analysis will be used to analyse the qualitative interview data.

Data Collection and Monitoring

Data will be collected and managed in line with the Australian Code for the Responsible Conduct of Research.

Ethics

This protocol has received ethical approval from the Curtin University Human Research Ethics Committee (HRE2017-0847).

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Methodological Considerations

As the MSCR intervention has not yet been trialled with doctors, a preliminary open trial is appropriate. We will also be conducting interviews with approximately 20 of the participants to acquire information on the feasibility and acceptability of the program. Further, we will conduct a basic cost analysis to obtain some preliminary information on cost effectiveness of the program. The inclusion of three follow-up data collection points is also a strength because it will provide important information about the longer term impact of the intervention.

Discussion

This paper presents the protocol of an open trial designed to assess the effectiveness of a brief intervention to reduce burnout and improve the resilience of doctors working in rural Australia. Effective interventions that can be implemented into busy workplaces are important if we are to support doctors to remain resilient in the face of workplace stress.

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1. McCray, L., et al., *Resident physician burnout: Is there hope?* . Family Medicine, 2008. **40**(9): p. 626-632.
2. Patterson, R. and J. Adams, *Professional Burnout - a Regulatory perspective*. New Zealand Medical Journal, 2011. **124**(1333): p. 40-60.
3. Dyrbye, L., et al., *A call to explore and address this underrecognized threat to safe, high quality patient care*. NAM (National Academy of Medicine) Perspectives. , 2017.
4. Craigie, M., et al., *A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses*. Mindfulness, 2016. **7**(3): p. 764-774.
5. Slatyer, S., et al., *Evaluating the effectiveness of a brief Mindful Self-Care and Resiliency (MSCR) intervention for nurses: A controlled trial*. Mindfulness, in press.
6. Burton, A., et al., *How Effective are Mindful-based interventions for reducing stress among health care professionals? A systematic Review and Meta-Analysis*. Stress Health, 2017. **33**(1): p. 3-13.
7. Gentry, J. E., & Baranowsky, A. B. (1998). *Treatment manual for the accelerated recovery program*. Toronto, ON. Psyche Ink Resources.
8. Rees, C., et al., *Understanding individual resilience in the workplace; the International Collaboration of workforce resilience model*. Frontiers in Psychology, 2015. **7**.
9. Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, **10**(2), 144-156. doi: 10.1093/clipsy.bpg016
10. Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression*. New York, NY: The Guilford Press.

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11. Wolever, R., Bobinet, K., McCabe, K., Mackenzie, E., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mindbody stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258. doi: 10.1037/a0027278

12. Goodman, M. J., & Schorling, J. B. (2012). A mindfulness course decreases burnout and improves well-being among healthcare providers. *The International Journal of Psychiatry in Medicine*, 43(2), 119-128. doi: 10.2190/PM.43.2.b

13. Ruths, F. A., de Zoysa, N., Frearson, S. J., Hutton, J., Williams, J. M. G., & Walsh, J. (2013). Mindfulness-based cognitive therapy for mental health professionals—A pilot study. *Mindfulness*, 4(4), 289-295. doi: 10.1007/s12671-012-0127-0

14. Hülshager, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98(2), 310-325. doi: 10.1037/a0031313

15. Zeller, J. M., & Levin, P. F. (2013). Mindfulness interventions to reduce stress among nursing personnel. *Workplace Health & Safety*, 61(2), 85-89. doi:10.1177/216507991306100207

16. Gauthier, T., Meyer, R. M., Grefe, D., & Gold, J. I. (2015). An on-the-job mindfulness-based intervention for pediatric ICU nurses: a pilot. *Journal of Pediatric Nursing*, 30(2), 402-409. doi: 10.1016/j.pedn.2014.10.005

17. Mackenzie, C. S., Poulin, P. A., & Seidman-Carlson, R. (2006). A brief mindfulness-based stress reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19(2), 105-109. doi: http://dx.doi.org/10.1016/j.apnr.2005.08.002

18. Sood, A., Prasad, K., Schroeder, D., & Varkey, P. (2011). Stress management and resilience training among Department of Medicine faculty: A pilot randomized

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- clinical trial. *Journal of General Internal Medicine*, 26(8), 858-861. doi: 10.1007/s11606-011-1640-x
19. Flarity, K., Gentry, J. E., & Mesnikoff, N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal*, 35(3), 247-258. doi: 10.1097/TME.0b013e31829b726f
20. Slatyer, S. J., Craigie, M., Rees, C.S., Davis, S., Dolan T., & Hegney, D. (in press) Nurse Experience of Participation in a Mindfulness-Based Self-Care and Resiliency Intervention. *Mindfulness* (accepted August 2017). <https://doi.org/10.1007/s12671-017-0802-2>
21. Richardson, J., et al., *Increasing the sensitivity of the AQoL inventory for the evaluation of interventions affecting mental health*. 2011, Melbourne: Centre for Health Economics, Monash University.
22. Connor, K. and J. Davidson, *Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC)*. *Depress. Depression & Anxiety* 2003. **18**: p. 76-82.
23. Malach-Pines, A., *The Burnout Measure, Short Version*. *International Journal of Stress Management*, 2005. **12**(1): p. 78-88.
24. Watson, D., L. Clark, and A. Tellegen, *Development and validation of brief measures of positive and negative affect: The PANAS scales*. *Journal of Personality and Social Psychology*. , 1988. **54**(6): p. 1063-1070
25. Feldman, G., et al., *Mindfulness and emotion regulation: the development and initial validation of the cognitive and affective mindfulness scale-revised (CAMSR)*. *J. Psychopathol. Behav. Assess.* , 2007. **29**: p. 177-190.

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26. Neff, K.D., *The development and validation of a scale to measure self-compassion.* Self and Identity, 2003. **2**: p. 223-250.

27. Brough, P., M. O’Driscoll, and T. Kalliath, *Evaluating the criterion validity of the Cybernetic Coping Scale: Cross-tagged predictions of psychological strain, job and family satisfaction.* Work & Stress, 2005. **19**: p. 276-292.

28. Stamm, B., *The Concise ProQOL Manual.* 2010.

29. Bech, P., Olsen, L., Kjolle, M., & Rasmussen, N. (2003). Measuring well-being rather than the absence of distress symptoms: A comparison of the SF-36 Mental Health subscale and the WHO-Five well-being scale. *International Journal of Methods in Psychiatric Research*, 12(2), 85-91. doi: 10.1002/mpr.145

30. Kessler, C., et al., *The World Health Organization health and work performance questionnaire (HPQ).* Journal of Occupational and Environmental Medicine, 2003. **45**(2): p. 156-174.

31. Russell, S., et al., *Shorter can also be better: The abridged job in general scale.* Educational and Psychological Measurement. , 2004. **64**(5): p. 878-893.

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Footnotes

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Table 1 Items from the World Health Organization trial registration

Sources of monetary or material support	Emerald GP Super Clinic
Primary sponsor	Emerald GP Super Clinic
Contact for public queries	d.hegney@cqu.edu.au
Contact for scientific queries	c.rees@curtin.edu.au
Public title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Scientific title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Countries of recruitment	Australia
Health condition(s) or problem(s) studied	Burnout, compassion fatigue, resilience, self- compassion
Intervention(s)	Mindful Self-Care and Resiliency (MSCR)
Key inclusion and exclusion criteria	Inclusion: general practitioners employed part or full-time at Emerald GP Super Clinic.
Study type	Interventional
Date of first enrolment	June 2018
Target sample size	60
Recruitment status	Not yet commenced
Primary outcome(s)	Change in: Professional Quality of Life (ProQol) (Compassion Fatigue), Burnout, Mood (PANAS),
Key secondary outcomes	Change in: Well-being (WHO), self-compassion (SCS), absenteeism/presenteeism, job satisfaction

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Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners

Introduction: The Mindful Self-Care and Resiliency (MSCR) program is a brief psychosocial intervention designed to promote resilience among various occupational groups. The intervention is based on the principles of mindfulness and also incorporates an educational self-care component. The current paper presents the protocol for a pilot study that will evaluate the effectiveness of this program among general practitioners working in rural Queensland, Australia.

Methods and Analysis: We will measure the impact of the MSCR program on levels of employee resilience (Connor-Davidson Resilience CD-RISC; STARS), compassion satisfaction and compassion fatigue (Professional Quality of Life Scale – ProQol), self-compassion (Self Compassion Scale - SCS) and mood (Positive and Negative Affect Scale - PANAS). We will also assess the impact of the program on job satisfaction (The Abridged Job-In-General Scale), absenteeism/presenteeism (The World Health Organization Health and Work Performance Questionnaire -WHO-HPQ) and general well-being (WHO Five Well-being Index). Repeated measures analysis of variance will be used to analyse the impact of the intervention on the outcome measures taken at pre, post, one month, three-month and six-month follow-up. We will conduct individual interviews with participants to gather data on the feasibility and acceptability of the program. Finally, we will conduct an initial cost-effectiveness analysis of the program.

Ethics and Dissemination: Approval for this study was obtained from the Curtin University Human Research ethics committee and the study has been registered with the Australian Clinical Trials Registry. Results will be published and presented at national and international congresses.

Trial registration: The trial was registered on 16/10/ 2017 with the Australian New Zealand Clinical Trials Registry (ACTRN12617001479392p).

Keywords: Resilience, Medical Profession, Occupational Stress, Well-being, workplace, Mindfulness, Self-Care, general practice

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Strengths and Limitations of this study

Strengths:

- This study is the first trial of this intervention with a sample of general practitioners
- In addition to assessing change on standardised measures, this study will assess acceptability and feasibility by including individual interviews with participants.
- The study utilises several follow-up evaluations (1, 3 and 6-months post intervention).

Limitation:

- As this is an initial pilot study, there is no control group comparison limiting firm conclusions that changes are attributable to the intervention itself.
- The nature of the sample (rural, Australian) means that results may have limited generalisability to broader groups of general practitioners

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The work of a general practitioner (GP) is highly demanding, requiring the provision of high quality continuity of care to a wide spectrum of patients while often under significant time pressure. It is of concern that approximately 50% of physicians report experiencing burnout at some stage in their careers^[1] and it is estimated that at any point in time one in three doctors are suffering burnout^[2]. Unfortunately, the experience of burnout is strongly associated with increased medical errors and is highly correlated with decreased patient satisfaction, decreased employee job satisfaction, lower job productivity, increased absenteeism and intent to leave^[3].

In addition to the already stressful nature of general practice, rural doctors face a further set of unique challenges. These include but are not limited to:

- Professional and social isolation
- Poorer local amenities and infrastructure
- Limited training and professional development opportunities
- Difficulties delivering services in geographically isolated areas, including long-distance travel, extended work hours and lack of locum support.

It is therefore essential that GPs are provided with the skills they need to recognise when they are at risk of burnout and the kinds of strategies they can put in place to maintain their own self-care and emotional well-being. Our research group has developed an evidence-supported intervention that has been shown to reliably reduce burnout and improve well-being among nurses. This program, the Mindful Self-Care and Resilience (MSCR) Intervention is a brief, skills-based program that incorporates principles of mindfulness, self-care and self-compassion. We have published two trials of this program with nurse participants, one an initial pilot investigation^[4] and a larger randomised controlled trial

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[5](N=91). Our program is one of only 9 mindfulness-based programs for health care professionals that have been formally evaluated worldwide^[6]. Of these, only three others have been evaluated experimentally and, in contrast to our controlled trial, have included much smaller samples (N=36, N=38, N=43) and limited follow-up periods^[6]. The brief nature of the MSCR program (6.5 hours followed by 1.5 hour follow-ups weekly over next 3 weeks) means that it is affordable to deliver and does not require a large time commitment, ensuring its feasibility for busy doctors and reductions in organisational back-fill costs.

The present study, working in partnership with Central Highlands Healthcare and the Rural Doctors Association of Australia and the Generalist Medical Training Programme, provides a unique opportunity to directly build occupational wellbeing among rural doctors.

Current Intervention: Development Protocol

Several preliminary steps were undertaken in the development of the MSCR intervention. First, we based the content of the intervention on existing explanatory models of adaptive emotion regulation and resiliency. Gentry and Baranowsky^[7] suggested that interventions that target adaptive emotion regulation and patterns of thinking in response to stressors, and foster new ways of relating to work may be central to building resiliency and reducing compassion fatigue. Furthermore, Rees and colleagues^[8] proposed a model of workplace resilience that highlights the importance of mindfulness as an adaptive process that enables more balanced appraisals of stressful events. Mindfulness is defined as the awareness that emerges through paying attention on purpose, in the present moment, and non-judgementally^[9]. The two most dominant mindfulness approaches are mindfulness-based stress reduction (MBSR: Kabat-Zinn^[9]) and mindfulness-based cognitive therapy (MBCT: Segal, Williams and Teasdale^[10]).

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Evidence from occupational settings shows that these 8-week interventions reliably lower stress^[11] and burnout^[12,13] and increase job satisfaction^[14]. However, in busy occupational settings, the 8-week duration of conventional mindfulness-based interventions may limit their broader adoption^[15]. Fortunately, a small number of studies have shown that more brief and less intensive mindfulness-based interventions lead to significant reductions in burnout symptoms and increased resilience in nurses and health care workers^[16,17,18].

To address the above limitations, we developed a mindful self-care and resiliency (MSCR) program to be a brief psychosocial intervention that integrates key principles and practices of mindfulness-based therapy with compassion fatigue prevention education as developed by Gentry and colleagues^[19,7]. We conducted a pilot study to test the feasibility of MSCR for nurses working at an acute care hospital^[4]. As part of this initial evaluation we also interviewed the nurse participants to obtain their feedback as to the acceptability and effectiveness of the intervention^[20]. Finally, we compared the intervention to a wait-list control in a non-randomised wait-list control study^[5]. Both the initial pilot and the non-randomised control study showed that the MSCR intervention resulted in significant reductions in burnout and improvements on various indices of psychological well-being. The nurses interviewed reported that the intervention was relevant and the strategies taught were easy to apply to their workplace setting (e.g. 3 minute breathing space). The next step in development of the MSCR program is to examine its feasibility, acceptableness and effectiveness with a sample of medical practitioners.

Current Intervention: Research Protocol

Following the initial pilot studies, we developed a SPIRIT-compliant research protocol (see Table 1) to evaluate the efficacy of the program among a large cohort of health care professionals.

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Aims and Hypotheses

The aim of this research trial is to investigate whether the MSCR intervention is effective in reducing burnout, secondary traumatic stress, and symptoms of general psychological distress in general practitioners working in a rural setting in Queensland Australia. Secondary aims are to determine whether the intervention increases protective factors for occupational stress, including compassion satisfaction, self-compassion and resilience and to evaluate the cost-effectiveness of the program.

Our primary hypothesis is that doctors completing the MSCR intervention will show significant reductions in symptoms of burnout, secondary traumatic stress and general psychological distress from pre to post intervention and from pre intervention to follow-up. A secondary hypothesis is that doctors completing the MSCR intervention would show significant improvements in compassion satisfaction, self-compassion and resilience from pre-post intervention and from pre-intervention to follow-up.

Methods/Design

Study design and data analysis

We will conduct a pilot investigation of the effectiveness of the MSCR program with general practitioners using a sequential mixed-method study design. Mixed method designs use a blend of qualitative and quantitative data collection, procedures and analysis. This design provides data for a deeper understanding of occupational resilience and the acceptability, feasibility, applicability and effectiveness of the MSCR program to build and maintain resilience among rural general practitioners.

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Effectiveness of the program: will be assessed by examining changes in scores on outcome measures at pre, post, one, three and six-month follow-ups.

Feasibility, acceptability and applicability of the MSCR program: will be determined using open-ended individual telephone interviews (approximately 30 minutes) with a purposive sample of 20 participants, one-month following the intervention. While it is envisaged that 20 participants will provide data saturation, if this is not reached, interviews will continue until it is reached, or the pool is exhausted. Interviews will be transcribed verbatim and subjected to thematic analysis. An experienced qualitative researcher (Hegney) will conduct the interviews, and then independently read the transcripts line-by-line to identify meaningful words and phrases, which will be coded to generate categories in the data. These categories will be grouped and collapsed to develop overarching themes describing responses to the MSCR program. Further coding to identify sub-themes will be conducted using NVivo qualitative analysis software. Emergent themes and sub-themes will be presented in narrative form.

Cost effectiveness of the program: The cost analysis will be used to estimate the associated costs of the program, whilst outcomes will be expressed as cost per sick leave avoided and cost per Quality-Adjusted Life Years gained (QALY). *The Assessment of Quality of Life (AQoL) 8D* will be used to collect quality of life data. The AQoL-8D is a health-related quality of life instrument that has been designed for use in economic evaluation studies^[21]. The advantage of this instrument, above others, is that it was designed to capture changes in both physical and psycho-social health and it is simple and quick to administer. The AQoL-8D will be administered at one-month and 6 months follow up. Quality of Life values will be collated using the appropriate algorithms as outlined on the AQoL website.

Sample Size

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We aim to recruit 60 participants. A-priori sample size estimation assuming at least an 80 percent chance of detecting a moderate anticipated effect size ($f = .25$) at an alpha level of 0.05, suggests that a total sample of $N = 32$ will be sufficient. Our previous studies^[4,5] suggest a 10% attrition rate across the study. Our initial intake of 60 participants will be sufficient to achieve the minimum sample size requirement of $N = 32$ by the final follow-up.

Participants

Inclusion criteria: general practitioners and registrars working in either a full-time or part-time capacity in Emerald, Queensland. Emerald has a population of 13,500 and has one rural hospital and 7 medical centres. The super clinic is the largest of the medical practices and is an accredited practice.

Recruitment

General practitioners and registrars from the Emerald, Queensland will be recruited to take part. The Emerald Super clinic approached the researchers to conduct the study. Convenience sampling will be used to recruit general practitioners to participate in one of two MSCR programs (30 participants in each).

Procedure

All GPs and registrars employed in one of the medical practices in Emerald will be invited to take part in the program. An email will be sent from the Emerald Super clinic to all of the Emerald practices outlining the start date of the program and providing a summary of the research aims. The email will outline the nature of the intervention (resilience-building and mindfulness training) and the time commitment required if they decide to participate. This email will make it clear that they can attend the program and opt not to take part in the research component if they wish. Data collection points are: immediately before and after the face-to-face session (hard-copy survey); on completion of third follow-up session (one

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month), 3 months and 6 months. Upon arrival at the MSCR groups, participants will be welcomed and the study explained verbally and envelopes handed out with Participant Information Sheet and consent forms as well as the outcome measures to be completed. Participants will simply place their completed forms into a secure box at the back of the room. Those not taking part in the research will simply post their uncompleted forms. The one-day face-to-face MSCR session will be conducted at a Rural Medical Resilience Retreat in April 2018; the three 1.5 hr follow-up sessions will be conducted using video-conference software as it will provide a secure environment and overcomes the need for participants working in rural and remote sites to travel long distances to meet face-to-face.

Intervention: MSCR Protocol

The MSCR program will be facilitated by Dr. Craigie (the developer of the MSCR program), who has worked closely with our team on previous studies. The full-day workshop includes education about compassion fatigue resiliency and introduces participants to mindfulness concepts (e.g., Autopilot Metaphor; Staying Present) and basic practices (e.g., breath meditation). Each participant will be provided with a manual that includes materials about Compassion Fatigue (CF) and its causes, and skills to build CF resiliency, referred to as the five “antibodies” (1 - Self-Regulation; 2 - Intentionality; 3 - Perceptual Maturation; 4 - Connection and Social Support; and 5 - Self-Care and Revitalisation. Both formal (e.g., body and breath; body scan) and informal practices (e.g., breathing space) are included and assigned as home-based practice exercises. A full description of the MSCR session content is provided in Craigie^[5]. Participants will repeat the outcome measures again at 1, 3 and 6 month follow-ups (electronically via qualtrics).

Outcome Measures

Demographics: (e.g. age, gender, qualifications, number of years working for employer)

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The Connor-Davidson Resilience Scale (CD-RISC-25) ^[22] is a valid and reliable measure of resilience for normal and clinical populations.

The Burnout Measure –Short Version is a short ten-item version of the widely used 21 item scale. Data from 2 national samples (Israeli Jewish and Arab) and 3 occupational samples attest to the validity and reliability of the BMS. ^[23].

Positive and Negative Affect Scale [PANAS] ^[24] is a 20-item measure of affective state that uses a 5-point Likert scale. It has two sub-scales; one measuring positive affectivity (PA) and the other negative affectivity (NA). The PANAS has demonstrated excellent reliability and validity, and is frequently used in research and clinical settings.

Cognitive and Affective Mindfulness Scale, Revised (CAMS-R) ^[25] is a 20 item self-report measure of trait-based mindfulness.

The Self-Compassion Scale – short form [SCS-SF] ^[26] is a brief 12-item scale measuring self-kindness, common humanity, and mindfulness, defined as holding one’s experience in a balanced perspective. The SCS-SF consists of six subscales measuring self-kindness, self-judgment, common humanity, feelings of isolation, mindfulness, and over-identification (the tendency to fixate on negative perceptions of self). Each item is structured as a statement describing a particular behaviour. The respondent is asked to indicate how often he or she behaves in this stated manner on a 5-point scale from “Almost never” to “Almost always”. Negative constructs (self-judgment, isolation and over-identification) are reversed scored and the total mean calculated to obtain a total self-compassion score. Higher scores indicate more self-compassion in difficult times.

Cybernetic Coping Scale a 14-item measure of coping ^[27] is a 14 item measure of coping with a six point response format, that acknowledges the function of coping as both an independent variable and an outcome.

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The Professional Quality of Life Scale version 5 [ProQol5] ^[28] provides a measure of the constructs of compassion satisfaction and compassion fatigue; the second of which comprises burnout and secondary traumatic stress. Compassion satisfaction indicates an individual's positive adjustment to work derived from the pleasure of caring for others and the sense of performing well. On the other hand, burnout manifests as feelings of frustration, depressed mood and exhaustion that arise as negative aspects of caring. The third construct, secondary traumatic stress constitutes avoidance behaviours in response to work-related trauma associated with exposure to others' suffering through caring. The ProQol5 is a 30-item, five-point Likert scale, containing three 10-item subscales measuring each of the aforementioned constructs.

The WHO (Five) Well-being Index [WHO Five] ^[29] is a short instrument measuring subjective quality of life based on positive mood, vitality and general interest. It has five items rated on a six-point Likert scale. Percentage scores are reported and compared to monitor changes in well-being. A difference of 10% indicates a significant change. The instrument has been well-validated in the general population ^[29].

The World Health Organization Health and Work Performance Questionnaire [WHO-HPQ] ^[30]. Absenteeism will be measured by four items from the WHO-HPQ. Kessler et al. demonstrated significant relationships between the self-reported scale responses and objective records of missed work from payroll records. Job performance will be measured by two items from the WHO-HPQ's presenteeism subscale which asks respondents to rate their own performance, and the average performance of other workers in their field, to form a relative indication of job performance.

The Abridged Job-In-General Scale ^[31] will be used to measure job satisfaction. This eight-item scale is a short version of the previous Job in General Scale. Participants respond

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with “Yes”, “No”, or “?” to affective descriptors of their job at the global level. Excellent measurement model validity and reliability indices have been demonstrated.

Data Analyses

This study will utilise repeated measures ANOVA to test the effectiveness hypotheses. Effect-sizes will be calculated to derive a Cohen’s *d* coefficient. Thematic analysis will be used to analyse the qualitative interview data.

Data Collection and Monitoring

Data will be collected and managed in line with the Australian Code for the Responsible Conduct of Research.

Ethics

This protocol has received ethical approval from the Curtin University Human Research Ethics Committee (HRE2017-0847).

Methodological Considerations

As the MSCR intervention has not yet been trialled with general practitioners, a preliminary open trial is appropriate. We will also be conducting interviews with approximately 20 of the participants to acquire information on the feasibility and acceptability of the program. Further, we will conduct a basic cost analysis to obtain some preliminary information on cost effectiveness of the program. The inclusion of three follow-up data collection points is also a strength because it will provide important information about the longer term impact of the intervention. We acknowledge that participants will be required to complete a substantial number of instruments and that this may impact on participation rates. However, our previous trials with nurses^[4,5] included a similar number of instruments and we were able to achieve excellent rates of participation and retention in the program and at follow-up.

Discussion

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This paper presents the protocol of an open trial designed to assess the effectiveness of a brief intervention to reduce burnout and improve the resilience of general practitioners working in rural Australia. The results of this study are therefore likely to be most applicable to similar groups of GPs working in rural areas but may have limited generalisability to other groups of GPs (such as those working in urban settings). As this is a pilot trial of the intervention, the next step will be to conduct a larger study and include a control group comparison and a 12-month follow-up period. We also intend to trial the intervention with GPs working in urban settings.

It has been shown that rates of burnout among physicians are higher in those working in community settings compared to hospital-based settings^[32]. Therefore the current trial aimed at reducing burnout in general practitioners working in a community setting is well justified. Effective interventions that can be implemented into busy workplaces are important if we are to support doctors to remain resilient in the face of workplace stress.

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References

1. Lee, M.E., Brown, D.W., & Cabrera, A.G. (2017). Physician burnout: an emergent crisis. *Progress in Pediatric Cardiology*, 44, 77-80.

2. Patterson, R. and J. Adams, Professional Burnout - a Regulatory perspective. *New Zealand Medical Journal*, 2011. 124(1333): p. 40-60.

3. Dyrbye, L., et al., A call to explore and address this underrecognized threat to safe, high quality patient care. *NAM (National Academy of Medicine) Perspectives.* , 2017.

4. Craigie, M., et al., A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness*, 2016. 7(3): p. 764-774.

5. Slatyer, S., et al., Evaluating the effectiveness of a brief Mindful Self-Care and Resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, in press.

6. Burton, A., et al., How Effective are Mindful-based interventions for reducing stress among health care professionals? A systematic Review and Meta-Analysis. *Stress Health*, 2017. 33(1): p. 3-13.

7. Gentry, J. E., & Baranowsky, A. B. (1998). *Treatment manual for the accelerated recovery program*. Toronto, ON. Psyche Ink Resources.

8. Rees, C., et al., *Understanding individual resilience in the workplace; the International Collaboration of workforce resilience model*. *Frontiers in Psychology*, 2015. 7.

9. Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144-156. doi: 10.1093/clipsy.bpg016

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10. Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression*. New York, NY: The Guilford Press.
11. Wolever, R., Bobinet, K., McCabe, K., Mackenzie, E., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mindbody stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258. doi: 10.1037/a0027278
12. Goodman, M. J., & Schorling, J. B. (2012). A mindfulness course decreases burnout and improves well-being among healthcare providers. *The International Journal of Psychiatry in Medicine*, 43(2), 119-128. doi: 10.2190/PM.43.2.b
13. Ruths, F. A., de Zoysa, N., Frearson, S. J., Hutton, J., Williams, J. M. G., & Walsh, J. (2013). Mindfulness-based cognitive therapy for mental health professionals—A pilot study. *Mindfulness*, 4(4), 289-295. doi: 10.1007/s12671-012-0127-0
14. Hülshager, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98(2), 310-325. doi: 10.1037/a0031313
15. Zeller, J. M., & Levin, P. F. (2013). Mindfulness interventions to reduce stress among nursing personnel. *Workplace Health & Safety*, 61(2), 85-89. doi:10.1177/216507991306100207
16. Gauthier, T., Meyer, R. M., Grefe, D., & Gold, J. I. (2015). An on-the-job mindfulness-based intervention for pediatric ICU nurses: a pilot. *Journal of Pediatric Nursing*, 30(2), 402-409. doi: 10.1016/j.pedn.2014.10.005
17. Mackenzie, C. S., Poulin, P. A., & Seidman-Carlson, R. (2006). A brief mindfulness-based stress reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19(2), 105-109. doi: <http://dx.doi.org/10.1016/j.apnr.2005.08.002>

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18. Sood, A., Prasad, K., Schroeder, D., & Varkey, P. (2011). Stress management and resilience training among Department of Medicine faculty: A pilot randomized clinical trial. *Journal of General Internal Medicine*, 26(8), 858-861. doi: 10.1007/s11606-011-1640-x

19. Flarity, K., Gentry, J. E., & Mesnikoff, N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal*, 35(3), 247-258. doi: 10.1097/TME.0b013e31829b726f

20. Slatyer, S. J., Craigie, M., Rees, C.S., Davis, S.,Dolan T.,& Hegney, D.(in press) Nurse Experience of Participation in a Mindfulness-Based Self-Care and Resiliency Intervention. *Mindfulness* (accepted August 2017). <https://doi.org/10.1007/s12671-017-0802-2>

21. Richardson, J., et al., *Increasing the sensitivity of the AQoL inventory for the evaluation of interventions affecting mental health*. 2011, Melbourne: Centre for Health Economics, Monash University.

22. Connor, K. and J. Davidson, *Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC)*. *Depress. Depression & Anxiety* 2003. **18**: p. 76-82.

23. Malach-Pines, A., *The Burnout Measure, Short Version*. *International Journal of Stress Management*, 2005. **12**(1): p. 78-88.

24. Watson, D., L. Clark, and A. Tellegen, *Development and validation of brief measures of positive and negative affect: The PANAS scales*. *Journal of Personality and Social Psychology*. , 1988. **54**(6): p. 1063-1070

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25. Feldman, G., et al., *Mindfulness and emotion regulation: the development and initial validation of the cognitive and affective mindfulness scale-revised (CAMSAR)*. J. Psychopathol. Behav. Assess. , 2007. **29**: p. 177-190.
26. Neff, K.D., *The development and validation of a scale to measure self-compassion*. Self and Identity, 2003. **2**: p. 223-250.
27. Brough, P., M. O'Driscoll, and T. Kalliath, *Evaluating the criterion validity of the Cybernetic Coping Scale: Cross-tagged predictions of psychological strain, job and family satisfaction*. Work & Stress, 2005. **19**: p. 276-292.
28. Stamm, B., *The Concise ProQOL Manual*. 2010.
29. Bech, P., Olsen, L., Kjolle, M., & Rasmussen, N. (2003). Measuring well-being rather than the absence of distress symptoms: A comparison of the SF-36 Mental Health subscale and the WHO-Five well-being scale. *International Journal of Methods in Psychiatric Research*, 12(2), 85-91. doi: 10.1002/mpr.145
30. Kessler, C., et al., *The World Health Organization health and work performance questionnaire (HPQ)*. Journal of Occupational and Environmental Medicine, 2003. **45**(2): p. 156-174.
31. Russell, S., et al., *Shorter can also be better: The abridged job in general scale*. Educational and Psychological Measurement. , 2004. **64**(5): p. 878-893.
32. Prosser, D., Johnson, S., Kuipers, E., Szmukler, G., Bebbington, P., & Thornicroft, G. (1996). Mental Health, 'Burnout' and Job Satisfaction among Hospital and Community-Based Mental Health Staff. *British Journal of Psychiatry*, 169(3), 334-337. doi:10.1192/bjp.169.3.334

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Table 1 Items from the World Health Organization trial registration

Sources of monetary or material support	Emerald GP Super Clinic
Primary sponsor	Emerald GP Super Clinic
Contact for public queries	d.hegney@cqu.edu.au
Contact for scientific queries	c.rees@curtin.edu.au
Public title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Scientific title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Countries of recruitment	Australia
Health condition(s) or problem(s) studied	Burnout, compassion fatigue, resilience, self- compassion
Intervention(s)	Mindful Self-Care and Resiliency (MSCR)
Key inclusion and exclusion criteria	Inclusion: general practitioners employed part or full-time at Emerald GP Super Clinic.
Study type	Interventional
Date of first enrolment	June 2018
Target sample size	60
Recruitment status	Not yet commenced
Primary outcome(s)	Change in: Professional Quality of Life (ProQol) (Compassion Fatigue), Burnout, Mood (PANAS),
Key secondary outcomes	Change in: Well-being (WHO), self-compassion (SCS), absenteeism/presenteeism, job satisfaction

BMJ Open

Mindful Self-Care and Resiliency (MSCR): Protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners

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Title: Mindful Self-Care and Resiliency (MSCR): Protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners

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Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners

Introduction: The Mindful Self-Care and Resiliency (MSCR) program is a brief psychosocial intervention designed to promote resilience among various occupational groups. The intervention is based on the principles of mindfulness and also incorporates an educational self-care component. The current paper presents the protocol for a pilot study that will evaluate the effectiveness of this program among general practitioners working in rural Queensland, Australia.

Methods and Analysis: We will measure the impact of the MSCR program on levels of employee resilience (Connor-Davidson Resilience CD-RISC; STARS), compassion satisfaction and compassion fatigue (Professional Quality of Life Scale – ProQol), self-compassion (Self Compassion Scale - SCS) and mood (Positive and Negative Affect Scale - PANAS). We will also assess the impact of the program on job satisfaction (The Abridged Job-In-General Scale), absenteeism/presenteeism (The World Health Organization Health and Work Performance Questionnaire -WHO-HPQ) and general well-being (WHO Five Well-being Index). Repeated measures analysis of variance will be used to analyse the impact of the intervention on the outcome measures taken at pre, post, one month, three-month and six-month follow-up. We will conduct individual interviews with participants to gather data on the feasibility and acceptability of the program. Finally, we will conduct an initial cost-effectiveness analysis of the program.

Ethics and Dissemination: Approval for this study was obtained from the Curtin University Human Research ethics committee and the study has been registered with the Australian Clinical Trials Registry. Results will be published and presented at national and international congresses.

Trial registration: The trial was registered on 16/10/ 2017 with the Australian New Zealand Clinical Trials Registry (ACTRN12617001479392p).

Keywords: Resilience, Medical Profession, Occupational Stress, Well-being, workplace, Mindfulness, Self-Care, general practice

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Strengths and Limitations of this study

Strengths:

- This study is the first trial of this intervention with a sample of general practitioners
- In addition to assessing change on standardised measures, this study will assess acceptability and feasibility by including individual interviews with participants.
- The study utilises several follow-up evaluations (1, 3 and 6-months post intervention).

Limitation:

- As this is an initial pilot study, there is no control group comparison limiting firm conclusions that changes are attributable to the intervention itself.
- The nature of the sample (rural, Australian) means that results may have limited generalisability to broader groups of general practitioners

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The work of a general practitioner (GP) is highly demanding, requiring the provision of high quality continuity of care to a wide spectrum of patients while often under significant time pressure. It is of concern that approximately 50% of physicians report experiencing burnout at some stage in their careers^[1] and it is estimated that at any point in time one in three doctors are suffering burnout^[2]. Unfortunately, the experience of burnout is strongly associated with increased medical errors and is highly correlated with decreased patient satisfaction, decreased employee job satisfaction, lower job productivity, increased absenteeism and intent to leave^[3].

In addition to the already stressful nature of general practice, rural doctors face a further set of unique challenges. These include but are not limited to:

- Professional and social isolation
- Poorer local amenities and infrastructure
- Limited training and professional development opportunities
- Difficulties delivering services in geographically isolated areas, including long-distance travel, extended work hours and lack of locum support.

It is therefore essential that GPs are provided with the skills they need to recognise when they are at risk of burnout and the kinds of strategies they can put in place to maintain their own self-care and emotional well-being. Our research group has developed an evidence-supported intervention that has been shown to reliably reduce burnout and improve well-being among nurses. This program, the Mindful Self-Care and Resilience (MSCR) Intervention is a brief, skills-based program that incorporates principles of mindfulness, self-care and self-compassion. We have published two trials of this program with nurse participants, one an initial pilot investigation^[4] and a larger randomised controlled trial

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^[5](N=91). Our program is one of only 9 mindfulness-based programs for health care professionals that have been formally evaluated worldwide^[6]. Of these, only three others have been evaluated experimentally and, in contrast to our controlled trial, have included much smaller samples (N=36, N=38, N=43) and limited follow-up periods^[6]. The brief nature of the MSCR program (6.5 hours followed by 1.5 hour follow-ups weekly over next 3 weeks) means that it is affordable to deliver and does not require a large time commitment, ensuring its feasibility for busy doctors and reductions in organisational back-fill costs.

The present study, working in partnership with Central Highlands Healthcare and the Rural Doctors Association of Australia and the Generalist Medical Training Programme, provides a unique opportunity to directly build occupational wellbeing among rural doctors.

Current Intervention: Development Protocol

Several preliminary steps were undertaken in the development of the MSCR intervention. First, we based the content of the intervention on existing explanatory models of adaptive emotion regulation and resiliency. Gentry and Baranowsky^[7] suggested that interventions that target adaptive emotion regulation and patterns of thinking in response to stressors, and foster new ways of relating to work may be central to building resiliency and reducing compassion fatigue. Furthermore, Rees and colleagues^[8] proposed a model of workplace resilience that highlights the importance of mindfulness as an adaptive process that enables more balanced appraisals of stressful events. Mindfulness is defined as the awareness that emerges through paying attention on purpose, in the present moment, and non-judgementally ^[9]. The two most dominant mindfulness approaches are mindfulness-based stress reduction (MBSR: Kabat-Zinn^[9]) and mindfulness-based cognitive therapy (MBCT: Segal, Williams and Teasdale^[10]).

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Evidence from occupational settings shows that these 8-week interventions reliably lower stress^[11] and burnout^[12,13] and increase job satisfaction^[14]. However, in busy occupational settings, the 8-week duration of conventional mindfulness-based interventions may limit their broader adoption^[15]. Fortunately, a small number of studies have shown that more brief and less intensive mindfulness-based interventions lead to significant reductions in burnout symptoms and increased resilience in nurses and health care workers^[16,17,18].

To address the above limitations, we developed a mindful self-care and resiliency (MSCR) program to be a brief psychosocial intervention that integrates key principles and practices of mindfulness-based therapy with compassion fatigue prevention education as developed by Gentry and colleagues^[19,7]. We conducted a pilot study to test the feasibility of MSCR for nurses working at an acute care hospital^[4]. As part of this initial evaluation we also interviewed the nurse participants to obtain their feedback as to the acceptability and effectiveness of the intervention^[20]. Finally, we compared the intervention to a wait-list control in a non-randomised wait-list control study^[5]. Both the initial pilot and the non-randomised control study showed that the MSCR intervention resulted in significant reductions in burnout and improvements on various indices of psychological well-being. The nurses interviewed reported that the intervention was relevant and the strategies taught were easy to apply to their workplace setting (e.g. 3 minute breathing space). The next step in development of the MSCR program is to examine its feasibility, acceptableness and effectiveness with a sample of medical practitioners.

Current Intervention: Research Protocol

Following the initial pilot studies, we developed a SPIRIT-compliant research protocol (see Table 1) to evaluate the efficacy of the program among a large cohort of health care professionals.

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Aims and Hypotheses

The aim of this research trial is to investigate whether the MSCR intervention is effective in reducing burnout, secondary traumatic stress, and symptoms of general psychological distress in general practitioners working in a rural setting in Queensland Australia. Secondary aims are to determine whether the intervention increases protective factors for occupational stress, including compassion satisfaction, self-compassion and resilience and to evaluate the cost-effectiveness of the program.

Our primary hypothesis is that doctors completing the MSCR intervention will show significant reductions in symptoms of burnout, secondary traumatic stress and general psychological distress from pre to post intervention and from pre intervention to follow-up. A secondary hypothesis is that doctors completing the MSCR intervention would show significant improvements in compassion satisfaction, self-compassion and resilience from pre-post intervention and from pre-intervention to follow-up.

Methods/Design

Study design and data analysis

We will conduct a pilot investigation of the effectiveness of the MSCR program with general practitioners using a sequential mixed-method study design. Mixed method designs use a blend of qualitative and quantitative data collection, procedures and analysis. This design provides data for a deeper understanding of occupational resilience and the acceptability, feasibility, applicability and effectiveness of the MSCR program to build and maintain resilience among rural general practitioners.

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Effectiveness of the program: will be assessed by examining changes in scores on outcome measures at pre, post, one, three and six-month follow-ups.

Feasibility, acceptability and applicability of the MSCR program: will be determined using open-ended individual telephone interviews (approximately 30 minutes) with a purposive sample of 20 participants, one-month following the intervention. While it is envisaged that 20 participants will provide data saturation, if this is not reached, interviews will continue until it is reached, or the pool is exhausted. Interviews will be transcribed verbatim and subjected to thematic analysis. An experienced qualitative researcher (Hegney) will conduct the interviews, and then independently read the transcripts line-by-line to identify meaningful words and phrases, which will be coded to generate categories in the data. These categories will be grouped and collapsed to develop overarching themes describing responses to the MSCR program. Further coding to identify sub-themes will be conducted using NVivo qualitative analysis software. Emergent themes and sub-themes will be presented in narrative form.

Cost effectiveness of the program: The cost analysis will be used to estimate the associated costs of the program, whilst outcomes will be expressed as cost per sick leave avoided and cost per Quality-Adjusted Life Years gained (QALY). *The Assessment of Quality of Life (AQoL) 8D* will be used to collect quality of life data. The AQoL-8D is a health-related quality of life instrument that has been designed for use in economic evaluation studies^[21]. The advantage of this instrument, above others, is that it was designed to capture changes in both physical and psycho-social health and it is simple and quick to administer. The AQoL-8D will be administered at one-month and 6 months follow up. Quality of Life values will be collated using the appropriate algorithms as outlined on the AQoL website.

Sample Size

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We aim to recruit 60 participants. A-priori sample size estimation assuming at least an 80 percent chance of detecting a moderate anticipated effect size ($f = .25$) at an alpha level of 0.05, suggests that a total sample of $N = 32$ will be sufficient. Our previous studies^[4,5] suggest a 10% attrition rate across the study. Our initial intake of 60 participants will be sufficient to achieve the minimum sample size requirement of $N = 32$ by the final follow-up.

Participants

Inclusion criteria: general practitioners and registrars working in either a full-time or part-time capacity in Emerald, Queensland. Emerald has a population of 13,500 and has one rural hospital and 7 medical centres. The super clinic is the largest of the medical practices and is an accredited practice.

Recruitment

General practitioners and registrars from the Emerald, Queensland will be recruited to take part. The Emerald Super clinic approached the researchers to conduct the study. Convenience sampling will be used to recruit general practitioners to participate in one of two MSCR programs (30 participants in each).

Procedure

All GPs and registrars employed in one of the medical practices in Emerald will be invited to take part in the program. An email will be sent from the Emerald Super clinic to all of the Emerald practices outlining the start date of the program and providing a summary of the research aims. The email will outline the nature of the intervention (resilience-building and mindfulness training) and the time commitment required if they decide to participate. This email will make it clear that they can attend the program and opt not to take part in the research component if they wish. Data collection points are: immediately before and after the face-to-face session (hard-copy survey); on completion of third follow-up session (one

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month), 3 months and 6 months. Upon arrival at the MSCR groups, participants will be welcomed and the study explained verbally and envelopes handed out with Participant Information Sheet and consent forms as well as the outcome measures to be completed. Participants will simply place their completed forms into a secure box at the back of the room. Those not taking part in the research will simply post their uncompleted forms. The one-day face-to-face MSCR session will be conducted at a Rural Medical Resilience Retreat in April 2018; the three 1.5 hr follow-up sessions will be conducted using video-conference software as it will provide a secure environment and overcomes the need for participants working in rural and remote sites to travel long distances to meet face-to-face.

Intervention: MSCR Protocol

The MSCR program will be facilitated by Dr. Craigie (the developer of the MSCR program), who has worked closely with our team on previous studies. The full-day workshop includes education about compassion fatigue resiliency and introduces participants to mindfulness concepts (e.g., Autopilot Metaphor; Staying Present) and basic practices (e.g., breath meditation). Each participant will be provided with a manual that includes materials about Compassion Fatigue (CF) and its causes, and skills to build CF resiliency, referred to as the five “antibodies” (1 - Self-Regulation; 2 - Intentionality; 3 - Perceptual Maturation; 4 - Connection and Social Support; and 5 - Self-Care and Revitalisation. Both formal (e.g., body and breath; body scan) and informal practices (e.g., breathing space) are included and assigned as home-based practice exercises. A full description of the MSCR session content is provided in Craigie^[5]. Participants will repeat the outcome measures again at 1, 3 and 6 month follow-ups (electronically via qualtrics).

Outcome Measures

Demographics: (e.g. age, gender, qualifications, number of years working for employer)

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The Connor-Davidson Resilience Scale (CD-RISC-25) ^[22] is a valid and reliable measure of resilience for normal and clinical populations.

The Burnout Measure –Short Version is a short ten-item version of the widely used 21 item scale. Data from 2 national samples (Israeli Jewish and Arab) and 3 occupational samples attest to the validity and reliability of the BMS. ^[23].

Positive and Negative Affect Scale [PANAS] ^[24] is a 20-item measure of affective state that uses a 5-point Likert scale. It has two sub-scales; one measuring positive affectivity (PA) and the other negative affectivity (NA). The PANAS has demonstrated excellent reliability and validity, and is frequently used in research and clinical settings.

Cognitive and Affective Mindfulness Scale, Revised (CAMS-R) ^[25] is a 20 item self-report measure of trait-based mindfulness.

The Self-Compassion Scale – short form [SCS-SF] ^[26] is a brief 12-item scale measuring self-kindness, common humanity, and mindfulness, defined as holding one’s experience in a balanced perspective. The SCS-SF consists of six subscales measuring self-kindness, self-judgment, common humanity, feelings of isolation, mindfulness, and over-identification (the tendency to fixate on negative perceptions of self). Each item is structured as a statement describing a particular behaviour. The respondent is asked to indicate how often he or she behaves in this stated manner on a 5-point scale from “Almost never” to “Almost always”. Negative constructs (self-judgment, isolation and over-identification) are reversed scored and the total mean calculated to obtain a total self-compassion score. Higher scores indicate more self-compassion in difficult times.

Cybernetic Coping Scale a 14-item measure of coping ^[27] is a 14 item measure of coping with a six point response format, that acknowledges the function of coping as both an independent variable and an outcome.

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The Professional Quality of Life Scale version 5 [ProQol5] ^[28] provides a measure of the constructs of compassion satisfaction and compassion fatigue; the second of which comprises burnout and secondary traumatic stress. Compassion satisfaction indicates an individual's positive adjustment to work derived from the pleasure of caring for others and the sense of performing well. On the other hand, burnout manifests as feelings of frustration, depressed mood and exhaustion that arise as negative aspects of caring. The third construct, secondary traumatic stress constitutes avoidance behaviours in response to work-related trauma associated with exposure to others' suffering through caring. The ProQol5 is a 30-item, five-point Likert scale, containing three 10-item subscales measuring each of the aforementioned constructs.

The WHO (Five) Well-being Index [WHO Five] ^[29] is a short instrument measuring subjective quality of life based on positive mood, vitality and general interest. It has five items rated on a six-point Likert scale. Percentage scores are reported and compared to monitor changes in well-being. A difference of 10% indicates a significant change. The instrument has been well-validated in the general population ^[29].

The World Health Organization Health and Work Performance Questionnaire [WHO-HPQ] ^[30]. Absenteeism will be measured by four items from the WHO-HPQ. Kessler et al. demonstrated significant relationships between the self-reported scale responses and objective records of missed work from payroll records. Job performance will be measured by two items from the WHO-HPQ's presenteeism subscale which asks respondents to rate their own performance, and the average performance of other workers in their field, to form a relative indication of job performance.

The Abridged Job-In-General Scale ^[31] will be used to measure job satisfaction. This eight-item scale is a short version of the previous Job in General Scale. Participants respond

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with “Yes”, “No”, or “?” to affective descriptors of their job at the global level. Excellent measurement model validity and reliability indices have been demonstrated.

Data Analyses

This study will utilise repeated measures ANOVA to test the effectiveness hypotheses. Effect-sizes will be calculated to derive a Cohen’s *d* coefficient. Thematic analysis will be used to analyse the qualitative interview data.

Data Collection and Monitoring

Data will be collected and managed in line with the Australian Code for the Responsible Conduct of Research.

Ethics

This protocol has received ethical approval from the Curtin University Human Research Ethics Committee (HRE2017-0847).

Methodological Considerations

As the MSCR intervention has not yet been trialled with general practitioners, a preliminary open trial is appropriate. We will also be conducting interviews with approximately 20 of the participants to acquire information on the feasibility and acceptability of the program. Further, we will conduct a basic cost analysis to obtain some preliminary information on cost effectiveness of the program. The inclusion of three follow-up data collection points is also a strength because it will provide important information about the longer term impact of the intervention. We acknowledge that participants will be required to complete a substantial number of instruments and that this may impact on participation rates. However, our previous trials with nurses^[4,5] included a similar number of instruments and we were able to achieve excellent rates of participation and retention in the program and at follow-up.

Patient and Public Involvement

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The target participants for this project are general practitioners. The project design and aims were informed by discussions with key stakeholders (GP clinic executive) who requested the intervention in the context of professional development of rural doctors as part of their regular professional development training. An executive manager of the rural GP super clinic representing participants was involved in establishing the study context, aims, timing, recruitment, and resourcing. Intervention participants were not involved in recruitment to the study. Research outcomes will be disseminated in summary form via routine rural clinic communiques and staff seminars.

Discussion

This paper presents the protocol of an open trial designed to assess the effectiveness of a brief intervention to reduce burnout and improve the resilience of general practitioners working in rural Australia. The results of this study are therefore likely to be most applicable to similar groups of GPs working in rural areas but may have limited generalisability to other groups of GPs (such as those working in urban settings). As this is a pilot trial of the intervention, the next step will be to conduct a larger study and include a control group comparison and a 12-month follow-up period. We also intend to trial the intervention with GPs working in urban settings.

It has been shown that rates of burnout among physicians are higher in those working in community settings compared to hospital-based settings^[32]. Therefore the current trial aimed at reducing burnout in general practitioners working in a community setting is well justified. Effective interventions that can be implemented into busy workplaces are important if we are to support doctors to remain resilient in the face of workplace stress.

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References

1. Lee, M.E., Brown, D.W., & Cabrera, A.G. (2017). Physician burnout: an emergent crisis. *Progress in Pediatric Cardiology*, 44, 77-80.

2. Patterson, R. and J. Adams, Professional Burnout - a Regulatory perspective. *New Zealand Medical Journal*, 2011. 124(1333): p. 40-60.

3. Dyrbye, L., et al., A call to explore and address this underrecognized threat to safe, high quality patient care. *NAM (National Academy of Medicine) Perspectives.* , 2017.

4. Craigie, M., et al., A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness*, 2016. 7(3): p. 764-774.

5. Slatyer, S., et al., Evaluating the effectiveness of a brief Mindful Self-Care and Resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, in press.

6. Burton, A., et al., How Effective are Mindful-based interventions for reducing stress among health care professionals? A systematic Review and Meta-Analysis. *Stress Health*, 2017. 33(1): p. 3-13.

7. Gentry, J. E., & Baranowsky, A. B. (1998). *Treatment manual for the accelerated recovery program*. Toronto, ON. Psyche Ink Resources.

8. Rees, C., et al., *Understanding individual resilience in the workplace; the International Collaboration of workforce resilience model*. *Frontiers in Psychology*, 2015. 7.

9. Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144-156. doi: 10.1093/clipsy.bpg016

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10. Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression*. New York, NY: The Guilford Press.
11. Wolever, R., Bobinet, K., McCabe, K., Mackenzie, E., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mindbody stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258. doi: 10.1037/a0027278
12. Goodman, M. J., & Schorling, J. B. (2012). A mindfulness course decreases burnout and improves well-being among healthcare providers. *The International Journal of Psychiatry in Medicine*, 43(2), 119-128. doi: 10.2190/PM.43.2.b
13. Ruths, F. A., de Zoysa, N., Frearson, S. J., Hutton, J., Williams, J. M. G., & Walsh, J. (2013). Mindfulness-based cognitive therapy for mental health professionals—A pilot study. *Mindfulness*, 4(4), 289-295. doi: 10.1007/s12671-012-0127-0
14. Hülshager, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98(2), 310-325. doi: 10.1037/a0031313
15. Zeller, J. M., & Levin, P. F. (2013). Mindfulness interventions to reduce stress among nursing personnel. *Workplace Health & Safety*, 61(2), 85-89. doi:10.1177/216507991306100207
16. Gauthier, T., Meyer, R. M., Grefe, D., & Gold, J. I. (2015). An on-the-job mindfulness-based intervention for pediatric ICU nurses: a pilot. *Journal of Pediatric Nursing*, 30(2), 402-409. doi: 10.1016/j.pedn.2014.10.005
17. Mackenzie, C. S., Poulin, P. A., & Seidman-Carlson, R. (2006). A brief mindfulness-based stress reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19(2), 105-109. doi: http://dx.doi.org/10.1016/j.apnr.2005.08.002

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18. Sood, A., Prasad, K., Schroeder, D., & Varkey, P. (2011). Stress management and resilience training among Department of Medicine faculty: A pilot randomized clinical trial. *Journal of General Internal Medicine*, 26(8), 858-861. doi: 10.1007/s11606-011-1640-x

19. Flarity, K., Gentry, J. E., & Mesnikoff, N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal*, 35(3), 247-258. doi: 10.1097/TME.0b013e31829b726f

20. Slatyer, S. J., Craigie, M., Rees, C.S., Davis, S.,Dolan T.,& Hegney, D.(in press) Nurse Experience of Participation in a Mindfulness-Based Self-Care and Resiliency Intervention. *Mindfulness* (accepted August 2017). <https://doi.org/10.1007/s12671-017-0802-2>

21. Richardson, J., et al., *Increasing the sensitivity of the AQoL inventory for the evaluation of interventions affecting mental health*. 2011, Melbourne: Centre for Health Economics, Monash University.

22. Connor, K. and J. Davidson, *Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC)*. *Depress. Depression & Anxiety* 2003. **18**: p. 76-82.

23. Malach-Pines, A., *The Burnout Measure, Short Version*. *International Journal of Stress Management*, 2005. **12**(1): p. 78-88.

24. Watson, D., L. Clark, and A. Tellegen, *Development and validation of brief measures of positive and negative affect: The PANAS scales*. *Journal of Personality and Social Psychology*. , 1988. **54**(6): p. 1063-1070

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25. Feldman, G., et al., *Mindfulness and emotion regulation: the development and initial validation of the cognitive and affective mindfulness scale-revised (CAMSAR)*. J. Psychopathol. Behav. Assess. , 2007. **29**: p. 177-190.
26. Neff, K.D., *The development and validation of a scale to measure self-compassion*. Self and Identity, 2003. **2**: p. 223-250.
27. Brough, P., M. O'Driscoll, and T. Kalliath, *Evaluating the criterion validity of the Cybernetic Coping Scale: Cross-tagged predictions of psychological strain, job and family satisfaction*. Work & Stress, 2005. **19**: p. 276-292.
28. Stamm, B., *The Concise ProQOL Manual*. 2010.
29. Bech, P., Olsen, L., Kjolle, M., & Rasmussen, N. (2003). Measuring well-being rather than the absence of distress symptoms: A comparison of the SF-36 Mental Health subscale and the WHO-Five well-being scale. *International Journal of Methods in Psychiatric Research*, 12(2), 85-91. doi: 10.1002/mpr.145
30. Kessler, C., et al., *The World Health Organization health and work performance questionnaire (HPQ)*. Journal of Occupational and Environmental Medicine, 2003. **45**(2): p. 156-174.
31. Russell, S., et al., *Shorter can also be better: The abridged job in general scale*. Educational and Psychological Measurement. , 2004. **64**(5): p. 878-893.
32. Prosser, D., Johnson, S., Kuipers, E., Szmukler, G., Bebbington, P., & Thornicroft, G. (1996). Mental Health, 'Burnout' and Job Satisfaction among Hospital and Community-Based Mental Health Staff. *British Journal of Psychiatry*, 169(3), 334-337. doi:10.1192/bjp.169.3.334

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Table 1 Items from the World Health Organization trial registration

Sources of monetary or material support	Emerald GP Super Clinic
Primary sponsor	Emerald GP Super Clinic
Contact for public queries	d.hegney@cqu.edu.au
Contact for scientific queries	c.rees@curtin.edu.au
Public title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Scientific title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Countries of recruitment	Australia
Health condition(s) or problem(s) studied	Burnout, compassion fatigue, resilience, self- compassion
Intervention(s)	Mindful Self-Care and Resiliency (MSCR)
Key inclusion and exclusion criteria	Inclusion: general practitioners employed part or full-time at Emerald GP Super Clinic.
Study type	Interventional
Date of first enrolment	June 2018
Target sample size	60
Recruitment status	Not yet commenced
Primary outcome(s)	Change in: Professional Quality of Life (ProQol) (Compassion Fatigue), Burnout, Mood (PANAS),
Key secondary outcomes	Change in: Well-being (WHO), self-compassion (SCS), absenteeism/presenteeism, job satisfaction

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Title: Mindful Self-Care and Resiliency (MSCR): Protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners

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Mindful Self-Care and Resiliency (MSCR): Protocol for a pilot trial of a brief mindfulness intervention to promote occupational resilience in rural general practitioners

Introduction: The Mindful Self-Care and Resiliency (MSCR) program is a brief psychosocial intervention designed to promote resilience among various occupational groups. The intervention is based on the principles of mindfulness and also incorporates an educational self-care component. The current paper presents the protocol for a pilot study that will evaluate the effectiveness of this program among general practitioners working in rural Queensland, Australia.

Methods and Analysis: We will measure the impact of the MSCR program on levels of employee resilience (Connor-Davidson Resilience CD-RISC; STARS), compassion satisfaction and compassion fatigue (Professional Quality of Life Scale – ProQol), self-compassion (Self Compassion Scale - SCS) and mood (Positive and Negative Affect Scale - PANAS). We will also assess the impact of the program on job satisfaction (The Abridged Job-In-General Scale), absenteeism/presenteeism (The World Health Organization Health and Work Performance Questionnaire -WHO-HPQ) and general well-being (WHO Five Well-being Index). Repeated measures analysis of variance will be used to analyse the impact of the intervention on the outcome measures taken at pre, post, one month, three-month and six-month follow-up. We will conduct individual interviews with participants to gather data on the feasibility and acceptability of the program. Finally, we will conduct an initial cost-effectiveness analysis of the program.

Ethics and Dissemination: Approval for this study was obtained from the Curtin University Human Research ethics committee and the study has been registered with the Australian Clinical Trials Registry. Results will be published and presented at national and international congresses.

Trial registration: The trial was registered on 16/10/ 2017 with the Australian New Zealand Clinical Trials Registry (ACTRN12617001479392p).

Keywords: Resilience, Medical Profession, Occupational Stress, Well-being, workplace, Mindfulness, Self-Care, general practice

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Strengths and Limitations of this study

Strengths:

- This study is the first trial of this intervention with a sample of general practitioners
- In addition to assessing change on standardised measures, this study will assess acceptability and feasibility by including individual interviews with participants.
- The study utilises several follow-up evaluations (1, 3 and 6-months post intervention).

Limitation:

- As this is an initial pilot study, there is no control group comparison limiting firm conclusions that changes are attributable to the intervention itself.
- The nature of the sample (rural, Australian) means that results may have limited generalisability to broader groups of general practitioners

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The work of a general practitioner (GP) is highly demanding, requiring the provision of high quality continuity of care to a wide spectrum of patients while often under significant time pressure. It is of concern that approximately 50% of physicians report experiencing burnout at some stage in their careers^[1] and it is estimated that at any point in time one in three doctors are suffering burnout^[2]. Unfortunately, the experience of burnout is strongly associated with increased medical errors and is highly correlated with decreased patient satisfaction, decreased employee job satisfaction, lower job productivity, increased absenteeism and intent to leave^[3].

In addition to the already stressful nature of general practice, rural doctors face a further set of unique challenges. These include but are not limited to:

- Less access to professional development opportunities
- Professional isolation; less collegial support available
- Additional requirements of delivering care in remote locations e.g. having to commute long distances and work longer hours.

It is therefore essential that GPs are provided with the skills they need to recognise when they are at risk of burnout and the kinds of strategies they can put in place to maintain their own self-care and emotional well-being. Our research group has developed an evidence-supported intervention that has been shown to reliably reduce burnout and improve well-being among nurses. This program, the Mindful Self-Care and Resilience (MSCR) Intervention is a brief, skills-based program that incorporates principles of mindfulness, self-care and self-compassion. We have published two trials of this program with nurse participants, one an initial pilot investigation^[4] and a larger randomised controlled trial^[5](N=91). Our program is one of only 9 mindfulness-based programs for health care

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professionals that have been formally evaluated worldwide^[6]. Of these, only three others have been evaluated experimentally and, in contrast to our controlled trial, have included much smaller samples (N=36, N=38, N=43) and limited follow-up periods^[6]. The brief nature of the MSCR program (6.5 hours followed by 1.5 hour follow-ups weekly over next 3 weeks) means that it is affordable to deliver and does not require a large time commitment, ensuring its feasibility for busy doctors and reductions in organisational back-fill costs.

The present study, working in partnership with Central Highlands Healthcare and the Rural Doctors Association of Australia and the Generalist Medical Training Programme, provides a unique opportunity to directly build occupational wellbeing among rural doctors.

Current Intervention: Development Protocol

Several preliminary steps were undertaken in the development of the MSCR intervention. First, we based the content of the intervention on existing explanatory models of adaptive emotion regulation and resiliency. Gentry and Baranowsky^[7] suggested that interventions that target adaptive emotion regulation and patterns of thinking in response to stressors, and foster new ways of relating to work may be central to building resiliency and reducing compassion fatigue. Furthermore, Rees and colleagues^[8] proposed a model of workplace resilience that highlights the importance of mindfulness as an adaptive process that enables more balanced appraisals of stressful events. Mindfulness is defined as the awareness that emerges through paying attention on purpose, in the present moment, and non-judgementally^[9]. The two most dominant mindfulness approaches are mindfulness-based stress reduction (MBSR: Kabat-Zinn^[9]) and mindfulness-based cognitive therapy (MBCT: Segal, Williams and Teasdale^[10]). Evidence from occupational settings shows that these 8-week interventions reliably lower

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stress^[11] and burnout^[12,13] and increase job satisfaction^[14]. However, in busy occupational settings, the 8-week duration of conventional mindfulness-based interventions may limit their broader adoption^[15]. Fortunately, a small number of studies have shown that more brief and less intensive mindfulness-based interventions lead to significant reductions in burnout symptoms and increased resilience in nurses and health care workers^[16,17,18].

To address the above limitations, we developed a mindful self-care and resiliency (MSCR) program to be a brief psychosocial intervention that integrates key principles and practices of mindfulness-based therapy with compassion fatigue prevention education as developed by Gentry and colleagues^[19,7]. We conducted a pilot study to test the feasibility of MSCR for nurses working at an acute care hospital^[4]. As part of this initial evaluation we also interviewed the nurse participants to obtain their feedback as to the acceptability and effectiveness of the intervention^[20]. Finally, we compared the intervention to a wait-list control in a non-randomised wait-list control study^[5]. Both the initial pilot and the non-randomised control study showed that the MSCR intervention resulted in significant reductions in burnout and improvements on various indices of psychological well-being. The nurses interviewed reported that the intervention was relevant and the strategies taught were easy to apply to their workplace setting (e.g. 3 minute breathing space). The next step in development of the MSCR program is to examine its feasibility, acceptableness and effectiveness with a sample of medical practitioners.

Current Intervention: Research Protocol

Following the initial pilot studies, we developed a SPIRIT-compliant research protocol (see Table 1) to evaluate the efficacy of the program among a cohort of rural general practitioners.

Aims and Hypotheses

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The aim of this research trial is to investigate whether the MSCR intervention is effective in reducing burnout, secondary traumatic stress, and symptoms of general psychological distress in general practitioners working in a rural setting in Queensland Australia. Secondary aims are to determine whether the intervention increases protective factors for occupational stress, including compassion satisfaction, self-compassion and resilience and to evaluate the cost-effectiveness of the program.

Our primary hypothesis is that doctors completing the MSCR intervention will show significant reductions in symptoms of burnout, secondary traumatic stress and general psychological distress from pre to post intervention and from pre intervention to follow-up. A secondary hypothesis is that doctors completing the MSCR intervention would show significant improvements in compassion satisfaction, self-compassion and resilience from pre-post intervention and from pre-intervention to follow-up.

Methods/Design

Study design and data analysis

We will conduct a pilot investigation of the effectiveness of the MSCR program with general practitioners using a sequential mixed-method study design. Mixed method designs use a blend of qualitative and quantitative data collection, procedures and analysis. This design provides data for a deeper understanding of occupational resilience and the acceptability, feasibility, applicability and effectiveness of the MSCR program to build and maintain resilience among rural general practitioners.

Effectiveness of the program: will be assessed by examining changes in scores on outcome measures at pre, post, one, three and six-month follow-ups.

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Feasibility, acceptability and applicability of the MSCR program: will be determined using open-ended individual telephone interviews (approximately 30 minutes) with a purposive sample of 20 participants, one-month following the intervention. While it is envisaged that 20 participants will provide data saturation, if this is not reached, interviews will continue until it is reached, or the pool is exhausted. Interviews will be transcribed verbatim and subjected to thematic analysis. An experienced qualitative researcher (Hegney) will conduct the interviews, and then independently read the transcripts line-by-line to identify meaningful words and phrases, which will be coded to generate categories in the data. These categories will be grouped and collapsed to develop overarching themes describing responses to the MSCR program. Further coding to identify sub-themes will be conducted using NVivo qualitative analysis software. Emergent themes and sub-themes will be presented in narrative form.

Cost effectiveness of the program: The cost analysis will be used to estimate the associated costs of the program, whilst outcomes will be expressed as cost per sick leave avoided and cost per Quality-Adjusted Life Years gained (QALY). *The Assessment of Quality of Life (AQoL) 8D* will be used to collect quality of life data. The AQoL-8D is a health-related quality of life instrument that has been designed for use in economic evaluation studies^[21]. The advantage of this instrument, above others, is that it was designed to capture changes in both physical and psycho-social health and it is simple and quick to administer. The AQoL-8D will be administered at one-month and 6 months follow up. Quality of Life values will be collated using the appropriate algorithms as outlined on the AQoL website.

Sample Size

We aim to recruit 60 participants. A-priori sample size estimation assuming at least an 80 percent chance of detecting a moderate anticipated effect size ($f = .25$) at an alpha level of 0.05, suggests that a total sample of $N = 32$ will be sufficient. Our previous studies ^[4,5]

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suggest a 10% attrition rate across the study. Our initial intake of 60 participants will be sufficient to achieve the minimum sample size requirement of N= 32 by the final follow-up.

Participants

Inclusion criteria: general practitioners and registrars working in either a full-time or part-time capacity in Emerald, Queensland. Emerald has a population of 13,500 and has one rural hospital and 7 medical centres. The super clinic is the largest of the medical practices and is an accredited practice.

Recruitment

General practitioners and registrars from the Emerald, Queensland will be recruited to take part. The Emerald Super clinic approached the researchers to conduct the study. Convenience sampling will be used to recruit general practitioners to participate in one of two MSCR programs (30 participants in each).

Procedure

All GPs and registrars employed in one of the medical practices in Emerald will be invited to take part in the program. An email will be sent from the Emerald Super clinic to all of the Emerald practices outlining the start date of the program and providing a summary of the research aims. The email will outline the nature of the intervention (resilience-building and mindfulness training) and the time commitment required if they decide to participate. This email will make it clear that they can attend the program and opt not to take part in the research component if they wish. Data collection points are: immediately before and after the face-to-face session (hard-copy survey); on completion of third follow-up session (one month), 3 months and 6 months. Upon arrival at the MSCR groups, participants will be welcomed and the study explained verbally and envelopes handed out with Participant Information Sheet and consent forms as well as the outcome measures to be completed.

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Participants will simply place their completed forms into a secure box at the back of the room. Those not taking part in the research will simply post their uncompleted forms. The one-day face-to-face MSCR session will be conducted at a Rural Medical Resilience Retreat in April 2018; the three 1.5 hr follow-up sessions will be conducted using video-conference software as it will provide a secure environment and overcomes the need for participants working in rural and remote sites to travel long distances to meet face-to-face.

Intervention: MSCR Protocol

The MSCR program will be facilitated by Dr. Craigie (the developer of the MSCR program), who has worked closely with our team on previous studies. The full-day workshop includes education about compassion fatigue resiliency and introduces participants to mindfulness concepts (e.g., Autopilot Metaphor; Staying Present) and basic practices (e.g., breath meditation). Each participant will be provided with a manual that includes materials about Compassion Fatigue (CF) and its causes, and skills to build CF resiliency, referred to as the five “antibodies” (1 - Self-Regulation; 2 - Intentionality; 3 - Perceptual Maturation; 4 - Connection and Social Support; and 5 - Self-Care and Revitalisation. Both formal (e.g., body and breath; body scan) and informal practices (e.g., breathing space) are included and assigned as home-based practice exercises. A full description of the MSCR session content is provided in Craigie^[5]. Participants will repeat the outcome measures again at 1, 3 and 6 month follow-ups (electronically via qualtrics).

Outcome Measures

Demographics: (e.g. age, gender, qualifications, number of years working for employer)

The Connor-Davidson Resilience Scale (CD-RISC-25)^[22] is a valid and reliable measure of resilience for normal and clinical populations.

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The Burnout Measure –Short Version is a short ten-item version of the widely used 21 item scale. Data from 2 national samples (Israeli Jewish and Arab) and 3 occupational samples attest to the validity and reliability of the BMS. ^[23].

Positive and Negative Affect Scale [PANAS] ^[24] is a 20-item measure of affective state that uses a 5-point Likert scale. It has two sub-scales; one measuring positive affectivity (PA) and the other negative affectivity (NA). The PANAS has demonstrated excellent reliability and validity, and is frequently used in research and clinical settings.

Cognitive and Affective Mindfulness Scale, Revised (CAMS-R) ^[25] is a 20 item self-report measure of trait-based mindfulness.

The Self-Compassion Scale – short form [SCS-SF] ^[26] is a brief 12-item scale measuring self-kindness, common humanity, and mindfulness, defined as holding one’s experience in a balanced perspective. The SCS-SF consists of six subscales measuring self-kindness, self-judgment, common humanity, feelings of isolation, mindfulness, and over-identification (the tendency to fixate on negative perceptions of self). Each item is structured as a statement describing a particular behaviour. The respondent is asked to indicate how often he or she behaves in this stated manner on a 5-point scale from “Almost never” to “Almost always”. Negative constructs (self-judgment, isolation and over-identification) are reversed scored and the total mean calculated to obtain a total self-compassion score. Higher scores indicate more self-compassion in difficult times.

Cybernetic Coping Scale a 14-item measure of coping ^[27] is a 14 item measure of coping with a six point response format, that acknowledges the function of coping as both an independent variable and an outcome.

The Professional Quality of Life Scale version 5 [ProQol5] ^[28] provides a measure of the constructs of compassion satisfaction and compassion fatigue; the second of which comprises

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burnout and secondary traumatic stress. Compassion satisfaction indicates an individual's positive adjustment to work derived from the pleasure of caring for others and the sense of performing well. On the other hand, burnout manifests as feelings of frustration, depressed mood and exhaustion that arise as negative aspects of caring. The third construct, secondary traumatic stress constitutes avoidance behaviours in response to work-related trauma associated with exposure to others' suffering through caring. The ProQol5 is a 30-item, five-point Likert scale, containing three 10-item subscales measuring each of the aforementioned constructs.

The WHO (Five) Well-being Index [WHO Five] ^[29] is a short instrument measuring subjective quality of life based on positive mood, vitality and general interest. It has five items rated on a six-point Likert scale. Percentage scores are reported and compared to monitor changes in well-being. A difference of 10% indicates a significant change. The instrument has been well-validated in the general population ^[29].

The World Health Organization Health and Work Performance Questionnaire [WHO-HPQ] ^[30]. Absenteeism will be measured by four items from the WHO-HPQ. Kessler et al. demonstrated significant relationships between the self-reported scale responses and objective records of missed work from payroll records. Job performance will be measured by two items from the WHO-HPQ's presenteeism subscale which asks respondents to rate their own performance, and the average performance of other workers in their field, to form a relative indication of job performance.

The Abridged Job-In-General Scale ^[31] will be used to measure job satisfaction. This eight-item scale is a short version of the previous Job in General Scale. Participants respond with "Yes", "No", or "?" to affective descriptors of their job at the global level. Excellent measurement model validity and reliability indices have been demonstrated.

Data Analyses

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This study will utilise repeated measures ANOVA to test the effectiveness hypotheses. Effect-sizes will be calculated to derive a Cohen’s *d* coefficient. Thematic analysis will be used to analyse the qualitative interview data.

Data Collection and Monitoring

Data will be collected and managed in line with the Australian Code for the Responsible Conduct of Research.

Ethics

This protocol has received ethical approval from the Curtin University Human Research Ethics Committee (HRE2017-0847).

Methodological Considerations

As the MSCR intervention has not yet been trialled with general practitioners, a preliminary pilot trial is appropriate. We will also be conducting interviews with approximately 20 of the participants to acquire information on the feasibility and acceptability of the program. Further, we will conduct a basic cost analysis to obtain some preliminary information on cost effectiveness of the program. The inclusion of three follow-up data collection points is also a strength because it will provide important information about the longer term impact of the intervention. We acknowledge that participants will be required to complete a substantial number of instruments and that this may impact on participation rates. However, our previous trials with nurses^[4,5] included a similar number of instruments and we were able to achieve excellent rates of participation and retention in the program and at follow-up.

Patient and Public Involvement

The target participants for this project are general practitioners. The project design and aims were informed by discussions with key stakeholders (GP clinic executive) who requested the intervention in the context of professional development of rural doctors as part of their regular professional development training. An executive manager of the rural GP

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super clinic representing participants was involved in establishing the study context, aims, timing, recruitment, and resourcing. Intervention participants were not involved in recruitment to the study. Research outcomes will be disseminated in summary form via routine rural clinic communiques and staff seminars.

Discussion

This paper presents the protocol of a pilot trial designed to assess the effectiveness of a brief intervention to reduce burnout and improve the resilience of general practitioners working in rural Australia. The results of this study are therefore likely to be most applicable to similar groups of GPs working in rural areas but may have limited generalisability to other groups of GPs (such as those working in urban settings). As this is a pilot trial of the intervention, the next step will be to conduct a larger study and include a control group comparison and a 12-month follow-up period. We also intend to trial the intervention with GPs working in urban settings.

It has been shown that rates of burnout among physicians are higher in those working in community settings compared to hospital-based settings^[32]. Therefore the current trial aimed at reducing burnout in general practitioners working in a community setting is well justified. Effective interventions that can be implemented into busy workplaces are important if we are to support doctors to remain resilient in the face of workplace stress.

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References

1. Lee, M.E., Brown, D.W., & Cabrera, A.G. (2017). Physician burnout: an emergent crisis. *Progress in Pediatric Cardiology*, 44, 77-80.

2. Patterson, R. and J. Adams, Professional Burnout - a Regulatory perspective. *New Zealand Medical Journal*, 2011. 124(1333): p. 40-60.

3. Dyrbye, L., et al., A call to explore and address this underrecognized threat to safe, high quality patient care. *NAM (National Academy of Medicine) Perspectives.* , 2017.

4. Craigie, M., et al., A pilot evaluation of a mindful self-care and resiliency (MSCR) intervention for nurses. *Mindfulness*, 2016. 7(3): p. 764-774.

5. Slatyer, S., et al., Evaluating the effectiveness of a brief Mindful Self-Care and Resiliency (MSCR) intervention for nurses: A controlled trial. *Mindfulness*, in press.

6. Burton, A., et al., How Effective are Mindful-based interventions for reducing stress among health care professionals? A systematic Review and Meta-Analysis. *Stress Health*, 2017. 33(1): p. 3-13.

7. Gentry, J. E., & Baranowsky, A. B. (1998). *Treatment manual for the accelerated recovery program*. Toronto, ON. Psyche Ink Resources.

8. Rees, C., et al., *Understanding individual resilience in the workplace; the International Collaboration of workforce resilience model*. *Frontiers in Psychology*, 2015. 7.

9. Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, 10(2), 144-156. doi: 10.1093/clipsy.bpg016

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10. Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression*. New York, NY: The Guilford Press.
11. Wolever, R., Bobinet, K., McCabe, K., Mackenzie, E., Fekete, E., Kusnick, C. A., & Baime, M. (2012). Effective and viable mindbody stress reduction in the workplace: A randomized controlled trial. *Journal of Occupational Health Psychology*, 17(2), 246-258. doi: 10.1037/a0027278
12. Goodman, M. J., & Schorling, J. B. (2012). A mindfulness course decreases burnout and improves well-being among healthcare providers. *The International Journal of Psychiatry in Medicine*, 43(2), 119-128. doi: 10.2190/PM.43.2.b
13. Ruths, F. A., de Zoysa, N., Frearson, S. J., Hutton, J., Williams, J. M. G., & Walsh, J. (2013). Mindfulness-based cognitive therapy for mental health professionals—A pilot study. *Mindfulness*, 4(4), 289-295. doi: 10.1007/s12671-012-0127-0
14. Hülshager, U. R., Alberts, H. J., Feinholdt, A., & Lang, J. W. (2013). Benefits of mindfulness at work: The role of mindfulness in emotion regulation, emotional exhaustion, and job satisfaction. *Journal of Applied Psychology*, 98(2), 310-325. doi: 10.1037/a0031313
15. Zeller, J. M., & Levin, P. F. (2013). Mindfulness interventions to reduce stress among nursing personnel. *Workplace Health & Safety*, 61(2), 85-89. doi:10.1177/216507991306100207
16. Gauthier, T., Meyer, R. M., Grefe, D., & Gold, J. I. (2015). An on-the-job mindfulness-based intervention for pediatric ICU nurses: a pilot. *Journal of Pediatric Nursing*, 30(2), 402-409. doi: 10.1016/j.pedn.2014.10.005
17. Mackenzie, C. S., Poulin, P. A., & Seidman-Carlson, R. (2006). A brief mindfulness-based stress reduction intervention for nurses and nurse aides. *Applied Nursing Research*, 19(2), 105-109. doi: <http://dx.doi.org/10.1016/j.apnr.2005.08.002>

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18. Sood, A., Prasad, K., Schroeder, D., & Varkey, P. (2011). Stress management and resilience training among Department of Medicine faculty: A pilot randomized clinical trial. *Journal of General Internal Medicine*, 26(8), 858-861. doi: 10.1007/s11606-011-1640-x

19. Flarity, K., Gentry, J. E., & Mesnikoff, N. (2013). The effectiveness of an educational program on preventing and treating compassion fatigue in emergency nurses. *Advanced Emergency Nursing Journal*, 35(3), 247-258. doi: 10.1097/TME.0b013e31829b726f

20. Slatyer, S. J., Craigie, M., Rees, C.S., Davis, S.,Dolan T.,& Hegney, D.(in press) Nurse Experience of Participation in a Mindfulness-Based Self-Care and Resiliency Intervention. *Mindfulness* (accepted August 2017). <https://doi.org/10.1007/s12671-017-0802-2>

21. Richardson, J., et al., *Increasing the sensitivity of the AQoL inventory for the evaluation of interventions affecting mental health*. 2011, Melbourne: Centre for Health Economics, Monash University.

22. Connor, K. and J. Davidson, *Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC)*. *Depress. Depression & Anxiety* 2003. **18**: p. 76-82.

23. Malach-Pines, A., *The Burnout Measure, Short Version*. *International Journal of Stress Management*, 2005. **12**(1): p. 78-88.

24. Watson, D., L. Clark, and A. Tellegen, *Development and validation of brief measures of positive and negative affect: The PANAS scales*. *Journal of Personality and Social Psychology*. , 1988. **54**(6): p. 1063-1070

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25. Feldman, G., et al., *Mindfulness and emotion regulation: the development and initial validation of the cognitive and affective mindfulness scale-revised (CAMSAR)*. J. Psychopathol. Behav. Assess. , 2007. **29**: p. 177-190.
26. Neff, K.D., *The development and validation of a scale to measure self-compassion*. Self and Identity, 2003. **2**: p. 223-250.
27. Brough, P., M. O'Driscoll, and T. Kalliath, *Evaluating the criterion validity of the Cybernetic Coping Scale: Cross-tagged predictions of psychological strain, job and family satisfaction*. Work & Stress, 2005. **19**: p. 276-292.
28. Stamm, B., *The Concise ProQOL Manual*. 2010.
29. Bech, P., Olsen, L., Kjolle, M., & Rasmussen, N. (2003). Measuring well-being rather than the absence of distress symptoms: A comparison of the SF-36 Mental Health subscale and the WHO-Five well-being scale. *International Journal of Methods in Psychiatric Research*, 12(2), 85-91. doi: 10.1002/mpr.145
30. Kessler, C., et al., *The World Health Organization health and work performance questionnaire (HPQ)*. Journal of Occupational and Environmental Medicine, 2003. **45**(2): p. 156-174.
31. Russell, S., et al., *Shorter can also be better: The abridged job in general scale*. Educational and Psychological Measurement. , 2004. **64**(5): p. 878-893.
32. Prosser, D., Johnson, S., Kuipers, E., Szmukler, G., Bebbington, P., & Thornicroft, G. (1996). Mental Health, 'Burnout' and Job Satisfaction among Hospital and Community-Based Mental Health Staff. *British Journal of Psychiatry*, 169(3), 334-337. doi:10.1192/bjp.169.3.334

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Footnotes

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Running head: Protocol for Mindful Self Care and Resilience Intervention with GPs

Table 1 Items from the World Health Organization trial registration

Sources of monetary or material support	Emerald GP Super Clinic
Primary sponsor	Emerald GP Super Clinic
Contact for public queries	d.hegney@cqu.edu.au
Contact for scientific queries	c.rees@curtin.edu.au
Public title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Scientific title	Mindful Self-Care and Resiliency (MSCR): Protocol for an open trial of a brief mindfulness intervention to promote occupational resilience in doctors
Countries of recruitment	Australia
Health condition(s) or problem(s) studied	Burnout, compassion fatigue, resilience, self- compassion
Intervention(s)	Mindful Self-Care and Resiliency (MSCR)
Key inclusion and exclusion criteria	Inclusion: general practitioners employed part or full-time at Emerald GP Super Clinic.
Study type	Interventional
Date of first enrolment	June 2018
Target sample size	60
Recruitment status	Not yet commenced
Primary outcome(s)	Change in: Professional Quality of Life (ProQol) (Compassion Fatigue), Burnout, Mood (PANAS),
Key secondary outcomes	Change in: Well-being (WHO), self-compassion (SCS), absenteeism/presenteeism, job satisfaction